

**Exercise 1** Let  $f$  be a function defined by  $f(x) = 3x$  and  $g$  be a function defined by  $g(x) = \frac{1}{3x+1}$ . Use the pair of functions  $f$  and  $g$  to find the following values, if they exist. If the value does not exist, enter DNE.

(a)  $(f + g)(2) = \boxed{\frac{43}{7}}$

(b)  $(f - g)(-1) = \boxed{-\frac{5}{2}}$

(c)  $(g - f)(1) = \boxed{-\frac{11}{4}}$

(d)  $(f \cdot g)\left(\frac{1}{2}\right) = \boxed{\frac{3}{5}}$

(e)  $\left(\frac{f}{g}\right)(-2) = \boxed{30}$

(f)  $\left(\frac{g}{f}\right)(0) = \boxed{DNE}$

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